Cimini 113611

IN THE CLAIMS:

      1. (Previously Presented) A receiver including a front-end stage that develops a plurality of individually modulated carriers, and a following stage, characterized in that:

      said front-end stage receives an incoming signal, develops an offset measure by developing signals related to said incoming signals and employing a plurality of modulated carriers created from a transformation into frequency domain of said signals related to said incoming signals, which offset measure participates in creating said signals related to said incoming signals.

      2. (Previously Presented) The system of claim 1, where said offset measure is a timing offset, and said processing operates on a plurality of pairs of said modulated carriers from said plurality of modulated carriers, taking account of frequency separation between carriers within each of said pairs.

      3. (Original) The system of claim 2, where the individually modulated transmission carriers are Orthogonal Frequency Division Multiplexed carriers.

      4. (Previously Presented) The system of claim 2 where said processing on said plurality of pairs develops a set of results, and develops said timing offset from the set of results.

      5. (Previously Presented) The system of claim 4, where carriers of a pair in said pairs are adjacent to each other in the frequency.

      6. (Previously Presented) The system of claim 4, where carriers of a pair in said pairs are equally spaced in the frequency domain, but not adjacent to each other.

      7. (Previously Presented) The system of claim 6 where the processor, in computing the timing offset, computes differences in phase between said received carriers.

2

Cimini 113611

8. (Previously Presented) The system of claim 4, where carriers of a pair in said pairs are not equally spaced in the frequency domain .

Claims 9 - 18 (Canceled) .

19. (Previously Presented) The system of claim 4 where said timing offset between any pair of modulated carriers is developed by raising the complex representation of the modulated carriers to an integer power.

20. (Previously Presented) The system of claim 19 where the carriers are modulated by an N-level phase modulation scheme, and the carriers are raised to the Nth power.

21. (Previously Presented) The system of claim 20 where the modulation is Quadrature Phase Shift Keying and the carriers are raised to the fourth power.

22. (Canceled) .

23. (Canceled) .

24. (Canceled) .

25. (Canceled) .

26. (Previously Presented) The system of claim 1 where said offset measure is a frequency offset that is developed by computing phases of said plurality of modulated carriers.

27. (Previously Presented) The system of claim 1 where the plurality of modulated carriers are used in combination to determine said offset measure with the contribution of each carrier weighted according to its accuracy.

3

Cimini 113611

28. (Original) The system of claim 27 where the accuracy of each carrier's contribution is determined based on the carrier's amplitude.

29. (Previously Presented) The system of claim 28 where, for each carrier, the carrier's amplitude and phase, represented by a complex number in a Cartesian coordinate system, is summed with the other carriers' complex representation to yield a composite vector , representing the composite amplitude and phase; said processor further employing the phase of this composite vector to create a frequency synchronization signal.

30. (Original) The system of claim 29 where the carriers' modulating data signals are known by the receivers and can be used to determine the precise transmitter carriers' phases.

31. (Original) The system of claim 29 where the carriers' modulating data signals are not known by the receivers but can be estimated by attempting to demodulate the carriers and then used to estimate the transmit carriers' phases.

32. (Original) The system of claim 29 where the carriers' modulating data signals are not known by the receivers but where the effect of the modulation can be removed from the carriers without demodulating the carriers.

33. (Original) The system of claim 32 where the means to remove the carriers' data modulation is by raising the complex representation of the carrier amplitude and phase to an integer power.

34. (Original) The system of claim 33 where the modulation of the carriers is by N level phase modulation and the data modulation is removed by raising the complex representation of the carrier amplitude and phase to the Nth power.

4

Cimini 113611

35. (Original) The system of claim **34** where the modulation is Quadrature Phase Shift Keying and the data modulation is removed by raising the complex representation of the carrier amplitude and phase to the fourth power.

Claims 36 - 82. (Canceled) .

5